Arboricultural Impact Assessment

Figure 1 Tree 374 *Casuarina glauca*

Site Address: 52 Taylor Rd Cranebrook

Client: St Paul's Grammar School

Date: September 2019

Prepared by Ian Hills - Associate Diploma Horticulture
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Table of contents

Table of Figures

1.0 Summary

Accurate Tree Assessment has been commissioned by St Paul's Grammar School, to provide an arboricultural impact assessment for 52 trees located around the site of the proposed new ILC building within the school grounds at 52 Taylor Rd Cranebrook, NSW

Trees have been assessed using Visual Tree Assessment (VTA) procedure (Matheny & Clark, 1994), (Mattheck & Breloer, 2004,) consideration is also given to the provisions of AS4970-2009, 'Protection of Trees on Development Sites' and 'Planning for Bushfire Protection', 2006.

Conclusions

Detailed assessment has been carried out on 52 trees, with 15 of those trees recommended removal on the basis of unsustainable encroachment or to meet bushfire mitigation requirements.

Retained trees will be protected by the implementation of measures detailed in the Australian Standard AS4970-2009, 'Protection of Trees on Development Sites' (AS4970) and section 8.1 of this report.

A number of retained trees will require pruning to provide clearance from the proposed structures.

Recommendations

That approval is granted for the removal of fifteen (15) trees as detailed in the table at section 6.0 of this report, subject to Council's requirements for replanting.

That protection measures meeting the objectives of AS4970 are implemented prior to the commencement of works to ensure that the remaining thirty-seven (37) trees are not subject to adverse impacts arising from the proposed development.

That works within the TPZ of retained trees are certified, or if necessary supervised by a suitably qualified project arborist.

That all tree work is carried out in accordance with the Workcover NSW Code of Practice: Amenity Tree Industry, 1998 and Australian Standard AS4373-2007, "Pruning of Amenity Trees"

2.0 Disclaimer

This report is to be read and considered in its entirety. The subject trees were inspected from the ground using Visual Tree Assessment methodology, no aerial investigations; underground or internal investigations were undertaken. It is the responsibility of the client to implement all recommendations contained in this report; Council consent may be required for substantial pruning and tree removal.

The assessment is made having regard for the prevailing site conditions; and does not account for the effects that extreme weather events may have on trees.

Information contained in this report reflects the condition of the trees at the time of the inspection. As trees are living organisms their condition will change over time, there is no guarantee that problems or deficiencies of the subject trees may not arise in the future. It must be accepted that living in close proximity to trees involves some level of risk.

No investigation into heritage significance or the presence on the site of threatened or endangered species of shrubs, groundcovers, grasses, herbs or orchids has been undertaken.

This report is for the use of St Pauls Grammar School and the managers of the current ILC building project to assist in determining the tree management measures to be undertaken in conjunction with the proposed development, and to support any application to Penrith City Council for tree works. Distribution to other parties is not permitted except with the express permission of the author, Ian Hills.

3.0 Brief

Accurate Tree Assessment has been commissioned by St Paul's Grammar School, to provide an arboricultural impact assessment for 52 trees located around the site of the proposed new ILC building within the school grounds at 52 Taylor Rd Cranebrook, NSW

In accordance with the report brief this report will:

- Identify trees affected by the proposed development
- Provide recommendations for removal or retention of trees based on the level of encroachment.
- Provide recommendations for protection of the trees to be retained on the subject site.

4.0 Method

A ground based site inspection was carried out on 5 September 2019.

Trees have been assessed using Visual Tree Assessment (VTA) procedure (Matheny & Clark, 1994), (Mattheck & Breloer, 2004,) consideration is also given to the provisions of AS4970-2009, 'Protection of Trees on Development Sites' when assessing the impacts of the proposed development upon the subject trees.

Details of the trees have been taken from the previous report prepared in June 2019.

Trees are each allocated a number that will be used as reference throughout this report. The position of trees has been marked on the site survey provided.

4.1 Reference Documents

The following documents have been used as reference in the preparation of the report:

- Site survey prepared by Richard Hogan and Company Job Ref 19185 sheet 7 of 7 issue A dated August 2019 (Appendix 12.2)
- The Australian Standard AS4970-2009, '*Protection of Trees on Development Sites*' (AS 4970-2009)
- The Australian Standard 4373-2007 '*Pruning of Amenity Trees*' (AS 4373-2007)
- NSW Rural Fire Service '*Planning for Bushfire Protection*', 2006

5.0 Site Conditions

The trees on the school grounds are protected by the provisions of Penrith Development Control Plan 2014 which applies to all prescribed vegetation within the Penrith LGA generally noted as:

- Trees having a height of 3 metres or more,
- Trees having a trunk diameter exceeding 100 millimetres at 1.4 metres height

During discussion on-site with the Principal of the senior school, Ian Wake it was advised that most of the trees have been planted during the rehabilitation of the property from its former use as a quarry. The trees are almost exclusively Australian native species and have been selected to replicate the local vegetation which is mapped as Castlereagh Scribbly Gum Woodland.

The soil is mapped as the Berkshire Park Landscape (9030bp) and has the following characteristics:

"Landscape—dissected, gently undulating low rises on the Tertiary terraces of the Hawkesbury/Nepean River system.

Soils—weakly pedal orange heavy clays and clayey sands, often mottled. Ironstone nodules common. Large (up to 20 cm) silcrete boulders occur in sand/clay matrix. Solod yellow podzolic soils, red podzolic soils, chocolate soils,structured plastic clays, structured clays.

Limitations—very high wind erosion hazard if cleared. Gully sheet and rill erosion on dissected areas. Localised seasonal water-logging, localised flood hazard, impermeable subsoils, low fertility."
(NSW Environment and Heritage, 2019)

According to data from the Penrith Lakes weather station which is approximately 3 kilometres from the site the district experiences prevailing winds from the South through; trees on the subject site are generally protected from strong winds by the density of retained vegetation, although the windward edge of canopies adjacent to the playing fields are exposed. (Willy Weather, 2019)

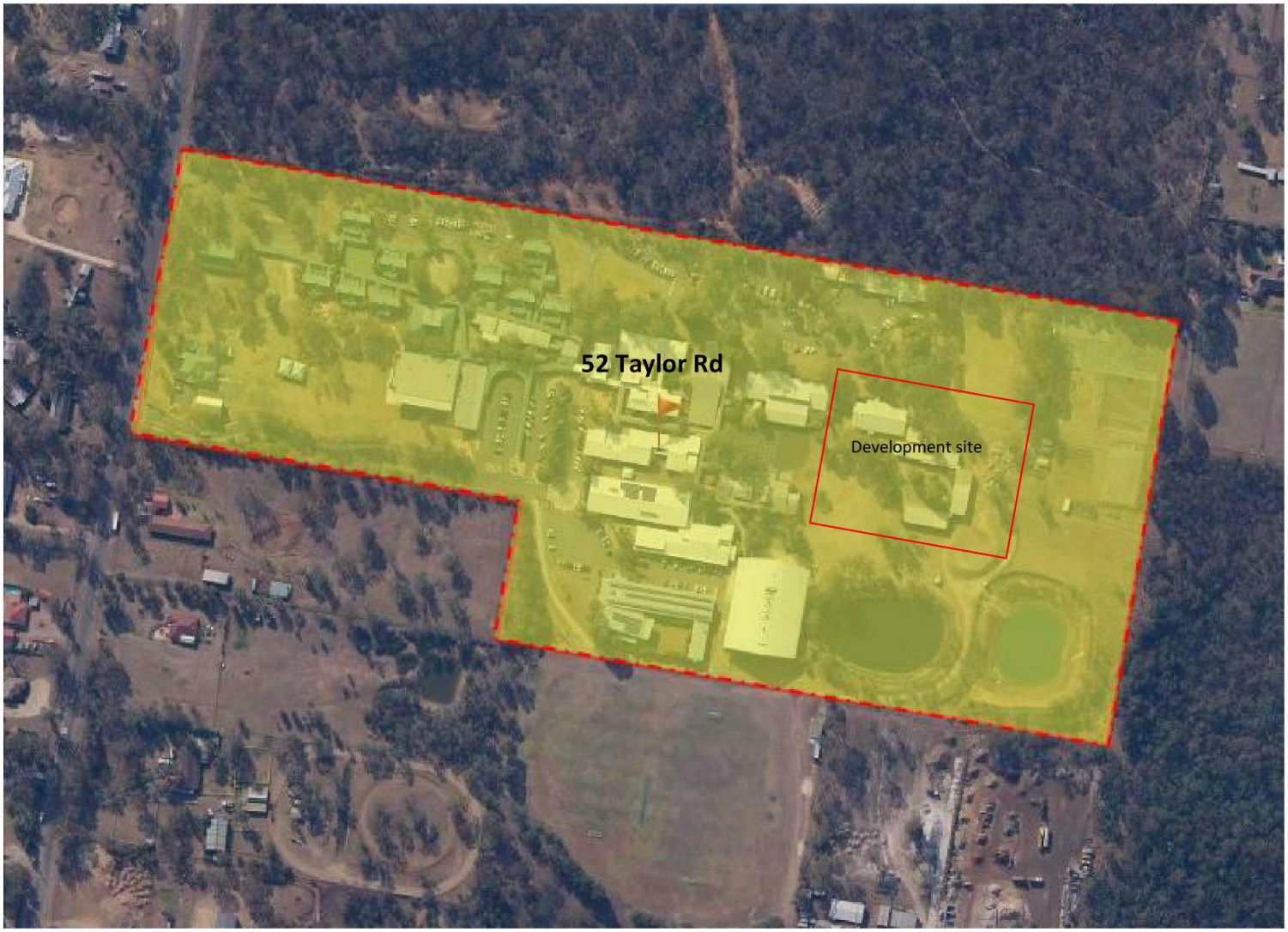


Figure 2 Subject site (source Sixmaps, 2019)

6.0 Tree Assessment

No	Common Name	Species	DBH (M)	TPZ (M)	SRZ (M)	HEIGHT (M)	SPREAD (M)	Age Class	SULE	Comments
351	Lemon-scented Gum	*Corymbia citriodora*	.45 x 3	9.36	3.14	19	15	M	2A	Tree to be retained in conjunction with the proposed development, protect in accordance with AS4970
352	Honey Myrtle	*Melaleuca armillaris*	0.25	3	2.13	7	4	OM	3A	Tree to be retained in conjunction with the proposed development, protect in accordance with AS4970
353	Spotted Gum	*Corymbia maculata*	.3, .2	4.32	2.37	15	6	M	3A	Tree to be retained in conjunction with the proposed development, protect in accordance with AS4970
354	**Tallow-wood**	***Eucalyptus microcorys***	**.3 x 2**	**5.04**	**2.47**	**16**	**9**	**M**	**2A**	Tree to be retained in conjunction with the proposed development, protect in accordance with AS4970
355	Tallow-wood	*Eucalyptus microcorys*	0.35	4.2	2.37	14	7	M	2A	Tree to be retained in conjunction with the proposed development, protect in accordance with AS4970
356	Tallow-wood	*Eucalyptus microcorys*	0.34	4.08	2.37	14	7	M	2A	Tree to be retained in conjunction with the proposed development, protect in accordance with AS4970
363	Tallow-wood	Eucalyptus microcorys	0.5	6	2.67	19	12	M	2A	Tree to be retained in conjunction with the proposed development, protect in accordance with AS4970
364	Tallow-wood	Eucalyptus microcorys	0.55	6.6	2.76	22	15	M	2A	Tree to be retained in conjunction with the proposed development, protect in accordance with AS4970
365	Tallow-wood	Eucalyptus microcorys	0.45	5.4	2.57	20	10	M	2A	Tree to be retained in conjunction with the proposed development, protect in accordance with AS4970
357	**Tallow-wood**	***Eucalyptus microcorys***	**0.25**	**3**	**2.13**	**12**	**5**	**M**	**2A**	**Tree proposed for removal to provide canopy separation for bushfire management purposes**
372	**Broad-leaved Paperbark**	***Melaleuca quinquenervia***	**.1 x 5**	**2.64**	**2.0**	**6**	**4**	**SM**	**1A**	**Tree proposed for removal due to major encroachment from the proposed development**
373	**Tallow-wood**	***Eucalyptus microcorys***	**0.4**	**4.8**	**2.47**	**12**	**6**	**M**	**1A**	**Tree proposed for removal due to major encroachment from the proposed development**
374	**Swamp She-oak**	***Casuarina glauca***	**0.4**	**4.8**	**2.47**	**15**	**7**	**M**	**2A**	**Tree proposed for removal due to being located within proposed building footprint**
375	**Sydney Blue Gum**	***Eucalyptus saligna***	**0.4**	**4.8**	**2.57**	**12**	**8**	**M**	**3A**	**Tree proposed for removal due to major encroachment from the proposed development**

No	Common Name	Species	DBH (M)	TPZ (M)	SRZ (M)	HEIGHT (M)	SPREAD (M)	Age Class	SULE	Comments
376	**Sydney Blue Gum**	***Eucalyptus saligna***	**0.4**	**4.8**	**2.47**	**16**	**8**	**M**	**1A**	**Tree proposed for removal to provide canopy separation for bushfire management purposes**
377	**Sydney Blue Gum**	***Eucalyptus saligna***	**0.65**	**7.8**	**2.88**	**20**	**12**	**M**	**2A**	**Tree proposed for removal to provide canopy separation for bushfire management purposes**
378	Sydney Blue Gum	*Eucalyptus saligna*	0.9	10.8	3.44	24	16	M	2A	Tree to be retained in conjunction with the proposed development, protect in accordance with AS4970
402	Scribbly Gum	*Eucalyptus racemosa*	0.65	7.8	2.93	12	12	M	1A	Tree to be retained in conjunction with the proposed development, protect in accordance with AS4970
403	Rough-barked Applegum	*Angophora floribunda*	.2 x 4	4.8	2.47	9	7	M	2A	Tree to be retained in conjunction with the proposed development, protect in accordance with AS4970
404	Rough-barked Applegum	*Angophora floribunda*	.3 x 3	6.24	2.67	10	8	M	2A	Tree to be retained in conjunction with the proposed development, protect in accordance with AS4970
405	Smooth-barked Applegum	*Angophora costata*	0.7	8.4	3.01	14	9	M	1C	Hollows, high environmental value, Tree to be retained in conjunction with the proposed development, protect in accordance with AS4970
408	**Rough-barked Applegum**	***Angophora floribunda***	**.12 x 5**	**3.24**	**2.25**	**8**	**5**	**M**	**2A**	**Tree proposed for removal due to being located within proposed building footprint**
409	**Black Wattle**	***Acacia melanoxylon***	**.25 x 5**	**6.72**	**2.78**	**8**	**6**	**M**	**2A**	**Tree proposed for removal due to being located within proposed building footprint**
411	**Scribbly Gum**	**Eucalyptus racemosa**	**.3 x 2**	**5.04**	**2.51**	**9**	**7**	**M**	**1A**	**Tree proposed for removal due to being located within proposed building footprint**
410	**Grey Gum**	***Eucalyptus punctata***	**0.3**	**3.6**	**2.25**	**10**	**6**	**M**	**2A**	**Tree proposed for removal due to being located within proposed building footprint**
412	**Black Wattle**	***Acacia melanoxylon***	**.3 x 2**	**5.04**	**2.51**	**8**	**5**	**M**	**2A**	**Tree proposed for removal due to being located within proposed building footprint**
413	Weeping Lilly Pilly	*Waterhousea floribunda*	0.2	2.4	2.0	8	4	M	1A	Tree to be retained in conjunction with the proposed development, protect in accordance with AS4970
414	Willow Myrtle	*Agonis flexuosa*	0.1	2	2.0	3	1	SM	2A	Tree to be retained in conjunction with the proposed development, protect in accordance with AS4970
415	Weeping Lilly Pilly	*Waterhousea floribunda*	0.1	2	2.0	5	3	J	5A	Tree to be retained in conjunction with the proposed development, protect in accordance with AS4970

No	Common Name	Species	DBH (M)	TPZ (M)	SRZ (M)	HEIGHT (M)	SPREAD (M)	Age Class	SULE	Comments
416	Tallow-wood	*Eucalyptus microcorys*	0.3	3.6	2.25	9	5	SM	2A	Tree to be retained in conjunction with the proposed development, protect in accordance with AS4970
417	Tallow-wood	*Eucalyptus microcorys*	0.28	3.36	2.25	10	5	SM	2A	Tree to be retained in conjunction with the proposed development, protect in accordance with AS4970
418	Tallow-wood	*Eucalyptus microcorys*	0.3	3.6	2.25	10	6	SM	1A	Tree to be retained in conjunction with the proposed development, protect in accordance with AS4970
420	Tallow-wood	*Eucalyptus microcorys*	0.25	3	2.13	10	5	M	2A	Tree to be retained in conjunction with the proposed development, protect in accordance with AS4970
419	Tallow-wood	*Eucalyptus microcorys*	0.3	3.6	2.25	10	6	M	1A	Tree to be retained in conjunction with the proposed development, protect in accordance with AS4970
421	Tallow-wood	*Eucalyptus microcorys*	0.3	3.6	2.25	9	5	M	1A	Tree to be retained in conjunction with the proposed development, protect in accordance with AS4970
422	Turpentine	*Syncarpia glomulifera*	0.4	4.8	2.25	9	6	M	1A	Tree to be retained in conjunction with the proposed development, protect in accordance with AS4970
423	Tallow-wood	*Eucalyptus microcorys*	0.35	4.2	2.37	16	8	M	1A	Tree to be retained in conjunction with the proposed development, protect in accordance with AS4970
424	Brush Box	*Lophostemon confertus*	0.2	2.4	2.0	6	4	SM	1A	Tree to be retained in conjunction with the proposed development, protect in accordance with AS4970
425	**Tallow-wood**	***Eucalyptus microcorys***	**0.4**	**4.8**	**2.47**	**16**	**9**	**M**	**2A**	**Tree to be retained in conjunction with the proposed development, pruning proposed to provide clearance from building line for bushfire management purposes**
426	**Grey Box**	***Eucalyptus moluccana***	**0.6**	**7.2**	**2.85**	**22**	**14**	**M**	**2A**	**Tree to be retained in conjunction with the proposed development, pruning proposed to provide clearance from building line for bushfire management purposes**
427	**Bangalay**	***Eucalyptus botryoides***	**.2 x 2**	**3.36**	**2.2**	**9**	**7**	**M**	**2A**	**Tree proposed for removal to provide canopy separation for bushfire management purposes**
428	**Bangalay**	***Eucalyptus botryoides***	**0.3**	**3.6**	**2.25**	**16**	**7**	**M**	**2A**	**Tree proposed for removal to provide clearance from building line for bushfire management purposes**
429	**Grey Box**	***Eucalyptus moluccana***	**0.65**	**7.8**	**2.93**	**20**	**14**	**M**	**2A**	**Tree to be retained in conjunction with the proposed development, pruning proposed to provide clearance from building line for bushfire management purposes**
430	**Blackbutt**	***Eucalyptus pilularis***	**0.6**	**7.2**	**2.85**	**18**	**12**	**M**	**2A**	**Tree to be retained in conjunction with the proposed development, pruning proposed to provide clearance from**

No	Common Name	Species	DBH (M)	TPZ (M)	SRZ (M)	HEIGHT (M)	SPREAD (M)	Age Class	SULE	Comments
										building line for bushfire management purposes
431	**Swamp Mahogany**	***Eucalyptus robusta***	**.2 x 2**	**3.36**	**2.25**	**8**	**5**	**M**	**1A**	**Tree proposed for removal due to major encroachment from the proposed development**
432	Broad-leaved Paperbark	*Melaleuca quinquenervia x 6*	0.35	4.2	2.37	7	5	M	1A	Tree to be retained in conjunction with the proposed development, protect in accordance with AS4970
433	Wangaratta White Gum	*Eucalyptus scoparia*	.35 x 2	5.88	2.67	12	8	M	2A	Tree to be retained in conjunction with the proposed development, protect in accordance with AS4970
450	Mugga Ironbark	*Eucalyptus sideroxylon*	0.5	6	2.67	18	10	M	2A	Tree to be retained in conjunction with the proposed development, protect in accordance with AS4970
477	Rough-barked Applegum	*Angophora floribunda*	.15 x 6	4.44	2.41	6	5	SM	2A	Tree to be retained in conjunction with the proposed development, protect in accordance with AS4970
478	Rough-barked Applegum	*Angophora floribunda*	.3 x 2, .1 x 3	5.28	2.57	9	6	M	2A	Tree to be retained in conjunction with the proposed development, protect in accordance with AS4970
479	Rough-barked Applegum	*Angophora floribunda*	.3, .15 x 3	4.8	2.47	9	6	M	2A	Tree to be retained in conjunction with the proposed development, protect in accordance with AS4970
480	~~Black Wattle~~	~~*Acacia melanoxylon*~~	~~0.5~~	~~6~~	~~2.67~~	~~8~~	~~5~~	~~M/ OM~~	~~3B~~	Tree already removed based on previous recommendation
481	Sydney Blue Gum	*Eucalyptus saligna*	.3, .15	4.08	2.34	9	5	SM	2A	Tree to be retained in conjunction with the proposed development, protect in accordance with AS4970

DBH = Diameter at 1.4 metres above ground level
TPZ = Tree Protection Zone calculated in accordance with AS4970
Trees requiring specific actions in bold type

Age class – J = Juvenile, SM =Semi-mature M = Mature, V = Veteran
SULE = Safe Useful Life Expectancy (Barrel, J -1993-95.Appendix 11.1)
Trees proposed for removal

7.0 Development impact

All parts of a tree may be damaged by construction activities, and the effects of damage are often cumulative meaning that seemingly minor damage to the tree can have adverse effects that may not become apparent until well after the project has been completed.

Crown damage often occurs when machinery comes in contact with branches of the tree resulting in a loss of foliage. As the foliage is where the tree produces the sugars required for healthy growth it therefore stands to reason that any loss of foliage will affect the trees ability to function normally.

In addition when branches are torn or improperly pruned the trees ability to recover is affected and pathogens that cause wood decay or disease have an increased opportunity to penetrate the trees natural defences.

Trunk damage is usually caused by mechanical impact, and again wounding predisposes the tree to infection by pathogens.

Root damage is the most common cause of damage to trees on development sites, and often has the most serious effects as it commonly goes un-noticed for some time. Damage can be caused by mechanical factors such as tearing during excavation, as well as factors such as chemical contamination, changes in hydrology and altering gaseous exchange rates by filling, and compaction during movement of equipment.

Australian Standard 4970, Protection of Trees on Development Sites was adopted in 2009 in an effort to provide Arborists and the construction industry with a guide to assist in the preservation of retained trees on all types of development sites.

To assist professionals working to protect trees the Standard proposes the following:

> *"Tree Protection Zone - A specified area above and below ground level at a given distance from the trunk set aside for the protection of a tree's roots and crown to provide for the viability and stability of a tree to be retained where it is potentially subject to damage by development.*
>
> *Structural Root Zone – The area around the base of a tree required for the tree's stability in the ground. The woody root growth and soil cohesion in this area are necessary to hold the tree upright. The SRZ is nominally circular with the trunk at its centre and is expressed by its radius in metres.*
>
> *This zone considers a tree's structural stability only, not the root zone required for a tree's vigour and long-term viability, which will usually be much larger."* (Ref. AS4970-2009)

Minor encroachment of the TPZ is sometimes unavoidable and at levels less than 10% of the total TPZ area can be tolerated if there is scope to increase the area of the TPZ contiguously about the unaffected perimeter. Where encroachment exceeds 10% further investigation will be required to determine the measures required to offset the incursion. Encroachment of the SRZ is not recommended as the tree's stability as well as its health and condition will almost certainly be adversely affected.

8.0 Discussion

Trees have been assessed using Visual Tree Assessment (VTA) procedure (Matheny & Clark, 1994), (Mattheck & Breloer, 2004,) consideration is also given to the provisions of AS4970-2009, 'Protection of Trees on Development Sites' and 'Planning for Bushfire Protection', 2006. Detailed assessment has been carried out on 52 trees, with 15 trees recommended removal on the basis of unsustainable encroachment or to meet bushfire mitigation requirements.

Tree management recommendations are detailed in Table 6.0 which set out the radius a of Tree Protection Zones and Structural Roots Zones as calculated in accordance with AS4970-2009 Protection of Trees on Development Sites.

8.1 Tree Protection

The following measures are to be adopted for the protection of retained trees as appropriate for the site:

Prior to Commencement of any Works

- trees to be retained have been marked on plans
- protective fencing is erected at the perimeter of the respective TPZ, the fenced areas are to be included on the site plan and marked as a "no go zone"
- where space does not permit fencing of the entire TPZ branch or trunk armouring can be used, the ground is to be protected from compaction by rumble boards or steel plates laid over a 100mm mulch layer
- staff are to be made aware of tree protection measures during induction to the site
- the area of the TPZ is to be mulched using 100mm depth of organic material, mulch must be kept clear of the base of tree trunks
- fencing is to include signage clearly denoting the TPZ as a "no go zone"

During construction

- tree protection measures are to be maintained in serviceable condition
- no storage of equipment or materials is permitted within the TPZ, no cement wasting or other pollutants must be allowed to enter the TPZ
- damage to any part of a protected tree is to be reported to the certifying arborist for assessment and remediation
- if services must pass through an established TPZ excavation is to carried out by hand
- if required minor pruning of branches can be undertaken to avoid mechanical impacts that are likely to result in branch or bark tearing
- no roots greater than 40mm diameter are to be severed within an established TPZ, except under the supervision of the certifying arborist.

Post construction

- protective fencing is to be removed from site
- steps can be taken to improve growing conditions if required such as de-compaction of soil, introduction of irrigation
- general maintenance pruning can be undertaken (in accordance with AS4373-2007) to remove deadwood or other defective branches up to 10% of the total canopy area of retained trees if required.

Trees overhanging the proposed ILC Building will need to be pruned to provide construction clearance of a minimum two metres from the vertical projection of the building line. This will also assist with the protection of branches from accidental damage and to allow the proposal to meet the objectives of bushfire mitigation by complying with the requirements for an Inner Protection Area (IPA) as detailed in PBP 2006 (Appendix 2.2.vi).

All tree pruning and removal is to be undertaken by a suitably qualified contracting arborist in accordance with the provisions of AS3473-2007, 'Pruning of Amenity Trees' and the Workcover NSW Code of Practice: Amenity Tree Industry, 1998.

To offset the removal of trees replanting will be undertaken in suitable areas of the school grounds where services and structures will not be affected by the growth habit of the species selected, and the location of the plantings will not compromise the responsibility of the school in meeting its bushfire management obligations. Plantings will be made up of native species representative of the Castlereagh Scribbly Gum Woodland so that landscape amenity on the site is maintained and enhanced.

9.0 Conclusions

Detailed assessment has been carried out on 52 trees, with 15 of those trees recommended removal on the basis of unsustainable encroachment or to meet bushfire mitigation requirements.

Retained trees will be protected by the implementation of measures detailed in the Australian Standard AS4970-2009, 'Protection of Trees on Development Sites' (AS4970) and section 8.1 of this report.

A number of retained trees will require pruning to provide clearance from the proposed structures.

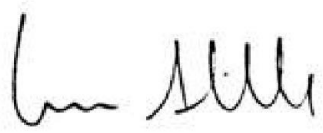
10.0 Recommendations

That approval is granted for the removal of fifteen (15) trees as detailed in the table at section 6.0 of this report, subject to Council's requirements for replanting.

That protection measures meeting the objectives of AS4970 are implemented prior to the commencement of works to ensure that the remaining thirty-seven (37) trees are not subject to adverse impacts arising from the proposed development.

That works within the TPZ of retained trees are certified, or if necessary supervised by a suitably qualified project arborist.

That all tree work is carried out in accordance with the Workcover NSW Code of Practice: Amenity Tree Industry, 1998 and Australian Standard AS4373-2007, "Pruning of Amenity Trees"



Ian Hills - Principal Arborist
Accurate Tree Assessment

11.0 Appendices

11.1. Safe Useful Life Expectancy Categories

1: Long SULE: Trees that appeared to be retainable at the time of assessment for more than 40 years with an acceptable level of risk.
(a) Structurally sound trees located in positions that can accommodate future growth.
(b) Trees that could be made suitable for retention in the long term by remedial tree care.
(c) Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long term retention.

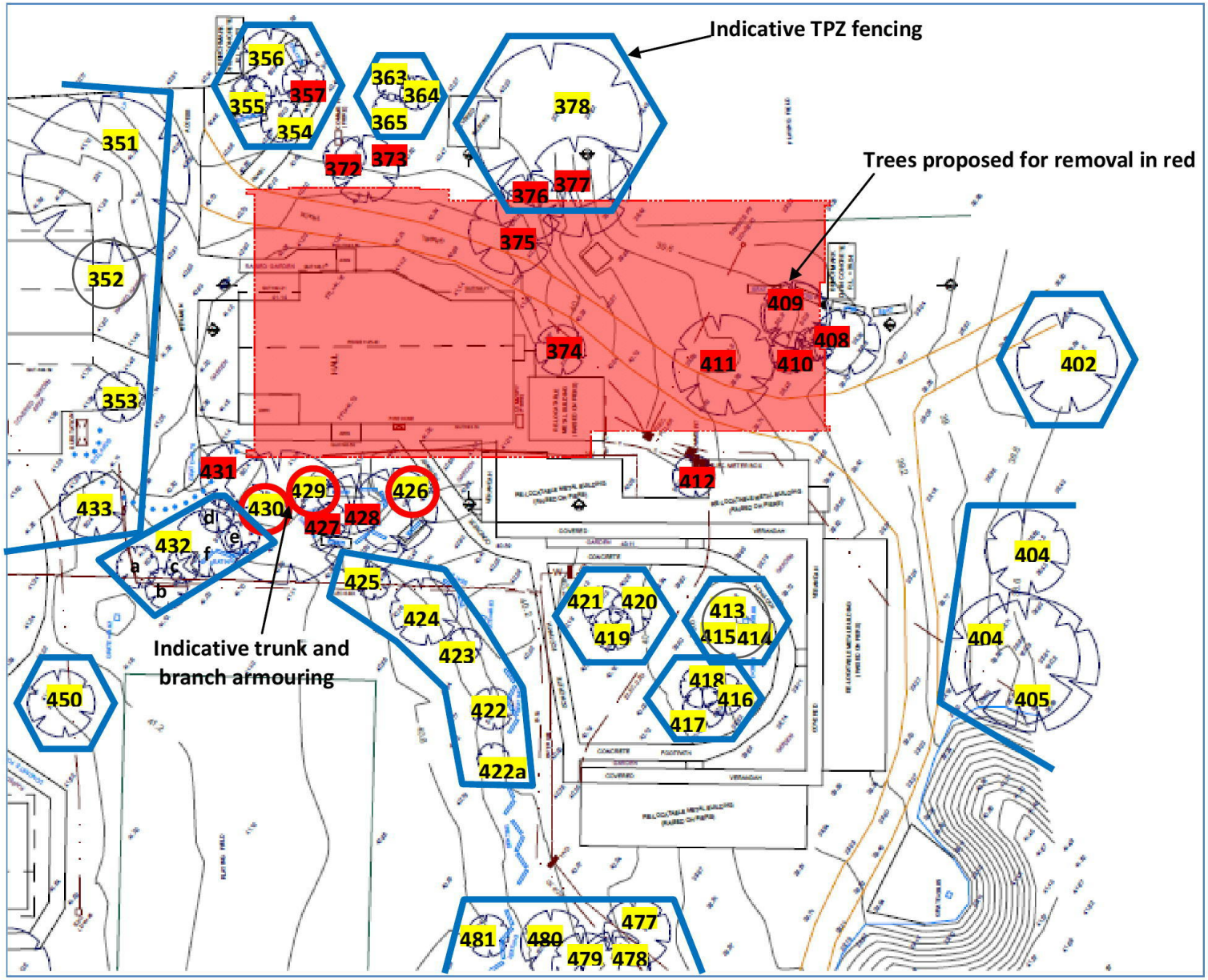
2: Medium SULE: Trees that appeared to be retainable at the time of assessment for 15–40 years with an acceptable level of risk.
(a) Trees that may only live between 15 and 40 more years.
(b) Trees that could live for more than 40 years but may be removed for safety or nuisance reasons.
(c) Trees that could live for more than 40 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting.
(d) Trees that could be made suitable for retention in the medium term by remedial tree care.

3: Short SULE: Trees that appeared to be retainable at the time of assessment for 5–15 years with an acceptable level of risk.
(a) Trees that may only live between 5 and 15 more years.
(b) Trees that could live for more than 15 years but may be removed for safety or nuisance reasons.
(c) Trees that could live for more than 15 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting.
(d) Trees that require substantial remedial tree care and are only suitable for retention in the short term.

4: Remove: Trees that should be removed within the next 5 years.
(a) Dead, dying, suppressed or declining trees because of disease or inhospitable conditions.
(b) Dangerous trees because of instability or recent loss of adjacent trees.
(c) Dangerous trees because of structural defects including cavities, decay, included bark, wounds or poor form.
(d) Damaged trees that are clearly not safe to retain.
(e) Trees that could live for more than 5 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting.
(f) Trees that are damaging or may cause damage to existing structures within 5 years.
(g) Trees that will become dangerous after removal of other trees for the reasons given in (a) to (f)
(h) Trees in categories (a) to (g) that have a high wildlife habitat value and, with appropriate treatment, could be retained subject to regular review.

5: Small, young or regularly pruned: Trees that can be reliably moved or replaced.
(a) Small trees less than 5m in height.
(b) Young trees less than 15 years old but over 5m in height.
(c) Formal hedges and trees intended for regular pruning to artificially control growth.

11.2. Survey Plan



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11.4 Qualifications – Ian Hills

Associate Diploma Horticulture	Ryde TAFE 1984
AQF3 Horticulture (Arboriculture)	Ourimbah TAFE 1998
AQF5 Diploma Horticulture (Arboriculture)	Kurri Kurri TAFE 2009 (Dux) Cert No. 5934155
QTRA Registered User 2083	December 2013
QTRA Registered Advanced User 4469	March 2018
WWC Number	WWC1780469E expires 26/10/2023